



1  
SEQUENCE LISTING

#9

<110> EVANS, RONALD M.

<120> Novel steroid-activated nuclear receptors and uses therefor

<130> SALK2270-5

<140> 10/081,555

<141> 2002-02-20

<150> 09/458,366

<151> 1999-12-09

<160> 09/227,718

<161> 1999-01-08

<170> 09/005,286

<171> 1998-01-09

<180> 43

<190> PatentIn Ver. 2.1

<210> 1

<211> 2068

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (583)..(1884)

<220>

<221> modified\_base

<222> (1263)

<223> a, c, t, or g

<400> 1

ggcacgagga gatctaggtt caaattaatg ttgccctag tggtaaagga cagagaccct 60

cagactgatg aaatgcgctc agaattactt agacaaagcg gatatttgcc actctcttcc 120

ccttttctg tgtttttgta gtgaagagac ctgaaagaaa aaagtaggga gaacataatg 180

agaacaaata cggtaatctc ttcatttgct agttcaagtg ctggacttgg gacttaggag 240

gggcaatgga gccgcttagt gcctacatct gacttggact gaaatatagg tgagagacaa 300

gattgtctca tatccgggga aatcataacc tatgactagg acgggaagag gaagcactgc 360

ctttacttca gtgggaatct cggcctcagc ctgcaagcca agtggttcaca gtgagaaaag 420

caagagaata agctaatact cctgtcctga acaaggcagc ggctccttgg taaagctact 480

ccttgatcga tcctttgcac cggattgttc aaagtggacc ccaggggaga agtcggagca 540

aagaacttac caccaagcag tccaagaggc ccagaagcaa ac ctg gag gtg aga 594  
Leu Glu Val Arg

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ccc aaa gaa agc tgg aac cat gct gac ttt gta cac tgt gag gac aca	642
Pro Lys Glu Ser Trp Asn His Ala Asp Phe Val His Cys Glu Asp Thr	
5 10 15 20	
gag tct gtt cct gga aag ccc agt gtc aac gca gat gag gaa gtc gga	690
Glu Ser Val Pro Gly Lys Pro Ser Val Asn Ala Asp Glu Glu Val Gly	
25 30 35	
ggg ccc caa atc tgc cgt gta tgt ggg gac aag gcc act ggc tat cac	738
Gly Pro Gln Ile Cys Arg Val Cys Gly Asp Lys Ala Thr Gly Tyr His	
40 45 50	
ttc aat gtc atg aca tgt gaa gga tgc aag ggc ttt ttc agg agg gcc	786
Phe Asn Val Met Thr Cys Glu Gly Cys Lys Gly Phe Phe Arg Arg Ala	
55 60 65	
atg aaa cgc aac gcc cgg ctg agg tgc ccc ttc cgg aag ggc gcc tgc	834
Met Lys Arg Asn Ala Arg Leu Arg Cys Pro Phe Arg Lys Gly Ala Cys	
70 75 80	
gag atc acc cgg aag acc cgg cga cag tgc cag gcc tgc cgc ctg cgc	882
Glu Ile Thr Arg Lys Thr Arg Arg Gln Cys Gln Ala Cys Arg Leu Arg	
85 90 95 100	
aag tgc ctg gag agc ggc atg aag aag gag atg atc atg tcc gac gag	930
Lys Cys Leu Glu Ser Gly Met Lys Lys Glu Met Ile Met Ser Asp Glu	
105 110 115	
gcc gtg gag gag agg cgg gcc ttg atc aag cgg aag aaa agt gaa cgg	978
Ala Val Glu Glu Arg Arg Ala Leu Ile Lys Arg Lys Lys Ser Glu Arg	
120 125 130	
aca ggg act cag cca ctg gga gtg cag ggg ctg aca gag gag cag cgg	1026
Thr Gly Thr Gln Pro Leu Gly Val Gln Gly Leu Thr Glu Glu Gln Arg	
135 140 145	
atg atg atc agg gag ctg atg gac gct cag atg aaa acc ttt gac act	1074
Met Met Ile Arg Glu Leu Met Asp Ala Gln Met Lys Thr Phe Asp Thr	
150 155 160	
acc ttc tcc cat ttc aag aat ttc cgg ctg cca ggg gtg ctt agc agt	1122
Thr Phe Ser His Phe Lys Asn Phe Arg Leu Pro Gly Val Leu Ser Ser	
165 170 175 180	
ggc tgc gag ttg cca gag cct ctg cag gcc cca tcg agg gaa gaa gct	1170
Gly Cys Glu Leu Pro Glu Pro Leu Gln Ala Pro Ser Arg Glu Glu Ala	
185 190 195	
gcc aag tgg agc cag gtc cgg aaa gat ctg tgc tct ttg aag gtc tct	1218
Ala Lys Trp Ser Gln Val Arg Lys Asp Leu Cys Ser Leu Lys Val Ser	
200 205 210	
ctg caa gct gcg ggg gga gga tgg cag tgt ctg gaa cta caa acn ccc	1266
Leu Gln Ala Ala Gly Gly Gly Trp Gln Cys Leu Glu Leu Gln Xaa Pro	
215 220 225	
agc cga cag tgg cgg aaa gag atc ttc tcc ctg ctg ccc cac atg gct	1314
Ser Arg Gln Trp Arg Lys Glu Ile Phe Ser Leu Leu Pro His Met Ala	
230 235 240	

gac atg tca acc tac atg ttc aaa ggc atc atc agc ttt gcc aaa gtc 1362  
 Asp Met Ser Thr Tyr Met Phe Lys Gly Ile Ile Ser Phe Ala Lys Val  
 245 250 255 260

atc tcc tac ttc agg gac ttg ccc atc gag gac cag atc tcc ctg ctg 1410  
 Ile Ser Tyr Phe Arg Asp Leu Pro Ile Glu Asp Gln Ile Ser Leu Leu  
 265 270 275

aag ggg gcc gct ttc gag ctg tgt caa ctg aga ttc aac aca gtg ttc 1458  
 Lys Gly Ala Ala Phe Glu Leu Cys Gln Leu Arg Phe Asn Thr Val Phe  
 280 285 290

aac gcg gag act gga acc tgg gag tgt ggc cgg ctg tcc tac tgc ttg 1506  
 Asn Ala Glu Thr Gly Thr Trp Glu Cys Gly Arg Leu Ser Tyr Cys Leu  
 295 300 305

gaa gac act gca ggt ggc ttc cag caa ctt cta ctg gag ccc atg ctg 1554  
 Glu Asp Thr Ala Gly Gly Phe Gln Gln Leu Leu Leu Glu Pro Met Leu  
 310 315 320

aaa ttc cac tac atg ctg aag aag ctg cag ctg cat gag gag gag tat 1602  
 Lys Phe His Tyr Met Leu Lys Lys Leu Gln Leu His Glu Glu Glu Tyr  
 325 330 335 340

gtg ctg atg cag gcc atc tcc ctc ttc tcc cca gac cgc cca ggt gtg 1650  
 Val Leu Met Gln Ala Ile Ser Leu Phe Ser Pro Asp Arg Pro Gly Val  
 345 350 355

ctg cag cac cgc gtg gtg gac cag ctg cag gag caa ttc gcc att act 1698  
 Leu Gln His Arg Val Val Asp Gln Leu Gln Glu Gln Phe Ala Ile Thr  
 360 365 370

ctg aag tcc tac att gaa tgc aat cgg ccc cag cct gct cat agg ttc 1746  
 Leu Lys Ser Tyr Ile Glu Cys Asn Arg Pro Gln Pro Ala His Arg Phe  
 375 380 385

ttg ttc ctg aag atc atg gct atg ctc acc gag ctc cgc agc atc aat 1794  
 Leu Phe Leu Lys Ile Met Ala Met Leu Thr Glu Leu Arg Ser Ile Asn  
 390 395 400

gct cag cac acc cag cgg ctg ctg cgc atc cag gac ata cac ccc ttt 1842  
 Ala Gln His Thr Gln Arg Leu Leu Arg Ile Gln Asp Ile His Pro Phe  
 405 410 415 420

gct acg ccc ctc atg cag gag ttg ttc ggc atc aca ggt agc 1884  
 Ala Thr Pro Leu Met Gln Glu Leu Phe Gly Ile Thr Gly Ser  
 425 430

tgagcggctg ccttggtga caccttcgag aggcagccag acccagagcc ctctgagccg 1944

gcactcccg gccaaagacag atggacactg ccaagagccg acaatgccct gctggcctgt 2004

ctccctaggg aattcctgct atgacagctg gctagcattc ctccaggaagg acatgggggtg 2064

cccc 2068

<210> 2  
 <211> 434  
 <212> PRT  
 <213> Homo sapiens

<220>  
 <221> MOD\_RES  
 <222> (227)  
 <223> Threonine

<400> 2

Leu Glu Val Arg Pro Lys Glu Ser Trp Asn His Ala Asp Phe Val His  
 1 5 10 15

Cys Glu Asp Thr Glu Ser Val Pro Gly Lys Pro Ser Val Asn Ala Asp  
 20 25 30

Glu Glu Val Gly Gly Pro Gln Ile Cys Arg Val Cys Gly Asp Lys Ala  
 35 40 45

Thr Gly Tyr His Phe Asn Val Met Thr Cys Glu Gly Cys Lys Gly Phe  
 50 55 60

Phe Arg Arg Ala Met Lys Arg Asn Ala Arg Leu Arg Cys Pro Phe Arg  
 65 70 75 80

Lys Gly Ala Cys Glu Ile Thr Arg Lys Thr Arg Arg Gln Cys Gln Ala  
 85 90 95

Cys Arg Leu Arg Lys Cys Leu Glu Ser Gly Met Lys Lys Glu Met Ile  
 100 105 110

Met Ser Asp Glu Ala Val Glu Glu Arg Arg Ala Leu Ile Lys Arg Lys  
 115 120 125

Lys Ser Glu Arg Thr Gly Thr Gln Pro Leu Gly Val Gln Gly Leu Thr  
 130 135 140

Glu Glu Gln Arg Met Met Ile Arg Glu Leu Met Asp Ala Gln Met Lys  
 145 150 155 160

Thr Phe Asp Thr Thr Phe Ser His Phe Lys Asn Phe Arg Leu Pro Gly  
 165 170 175

Val Leu Ser Ser Gly Cys Glu Leu Pro Glu Pro Leu Gln Ala Pro Ser  
 180 185 190

Arg Glu Glu Ala Ala Lys Trp Ser Gln Val Arg Lys Asp Leu Cys Ser  
 195 200 205

Leu Lys Val Ser Leu Gln Ala Ala Gly Gly Gly Trp Gln Cys Leu Glu  
 210 215 220

Leu Gln Xaa Pro Ser Arg Gln Trp Arg Lys Glu Ile Phe Ser Leu Leu  
 225 230 235 240

Pro His Met Ala Asp Met Ser Thr Tyr Met Phe Lys Gly Ile Ile Ser  
 245 250 255

Phe Ala Lys Val Ile Ser Tyr Phe Arg Asp Leu Pro Ile Glu Asp Gln  
 260 265 270

Ile Ser Leu Leu Lys Gly Ala Ala Phe Glu Leu Cys Gln Leu Arg Phe  
 275 280 285

Asn Thr Val Phe Asn Ala Glu Thr Gly Thr Trp Glu Cys Gly Arg Leu  
 290 295 300

Ser Tyr Cys Leu Glu Asp Thr Ala Gly Gly Phe Gln Gln Leu Leu Leu  
 305 310 315 320

Glu Pro Met Leu Lys Phe His Tyr Met Leu Lys Lys Leu Gln Leu His  
 325 330 335

Glu Glu Glu Tyr Val Leu Met Gln Ala Ile Ser Leu Phe Ser Pro Asp  
 340 345 350

Arg Pro Gly Val Leu Gln His Arg Val Val Asp Gln Leu Gln Glu Gln  
 355 360 365

Phe Ala Ile Thr Leu Lys Ser Tyr Ile Glu Cys Asn Arg Pro Gln Pro  
 370 375 380

Ala His Arg Phe Leu Phe Leu Lys Ile Met Ala Met Leu Thr Glu Leu  
 385 390 395 400

Arg Ser Ile Asn Ala Gln His Thr Gln Arg Leu Leu Arg Ile Gln Asp  
 405 410 415

Ile His Pro Phe Ala Thr Pro Leu Met Gln Glu Leu Phe Gly Ile Thr  
 420 425 430

Gly Ser

<210> 3

<211> 25

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Putative SXR  
 response element from the steroid hydroxylase,  
 rCYP3A1

<400> 3

tagacagttc atgaagttca tctac

25

<210> 4

<211> 25

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Putative SXR  
 response element from the steroid hydroxylase,  
 rCYP3A2

<400> 4  
 taagcagttc ataaagttca tctac 25

<210> 5  
 <211> 25  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Putative SXR  
 response element from the steroid hydroxylase,  
 rUGT1A6

<400> 5  
 actgtagttc ataaagttca catgg 25

<210> 6  
 <211> 26  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Putative SXR  
 response element from the steroid hydroxylase,  
 rbCYP2C1

<400> 6  
 caatcagttc aacagggttc accaat 26

<210> 7  
 <211> 33  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Putative SXR  
 response element from the steroid hydroxylase,  
 rP450R

<400> 7  
 cacaggtgag ctgaggccag cagcaggtcg aaa 33

<210> 8  
 <211> 27  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Putative SXR  
 response element from the steroid hydroxylase,  
 rCYP2A1

<400> 8  
 gtgcaggttc aactggaggt caacatg 27

<210> 9  
 <211> 27  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Putative SXR  
 response element from the steroid hydroxylase,  
 rCYP2A2

<400> 9  
 gtgctggttc aactggaggt cagtatg

27

<210> 10  
 <211> 27  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Putative SXR  
 response element from the steroid hydroxylase,  
 rCYP2C6

<400> 10  
 agtctagttc agtgggggtt cagtctt

27

<210> 11  
 <211> 27  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Putative SXR  
 response element from the steroid hydroxylase,  
 hCYP2E1

<400> 11  
 gagatggttc aaggaagggt cattaac

27

<210> 12  
 <211> 26  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Direct repeat  
 with spacer of 0 nucleotides

<400> 12  
 catagtcagg tcaaggtcag atcaac

26

<210> 13  
 <211> 27

<212> DNA  
<213> Artificial Sequence  
  
<220>  
<223> Description of Artificial Sequence: Direct repeat  
with spacer of 1 nucleotides  
  
<400> 13  
catagtcagg tcataggtca gatcaac 27  
  
<210> 14  
<211> 28  
<212> DNA  
<213> Artificial Sequence  
  
<220>  
<223> Description of Artificial Sequence: Direct repeat  
with spacer of 2 nucleotides  
  
<400> 14  
catagtcagg tcaataggtc agatcaac 28  
  
<210> 15  
<211> 29  
<212> DNA  
<213> Artificial Sequence  
  
<220>  
<223> Description of Artificial Sequence: Direct repeat  
with spacer of 3 nucleotides  
  
<400> 15  
catagtcagg tcatataggt cagatcaac 29  
  
<210> 16  
<211> 30  
<212> DNA  
<213> Artificial Sequence  
  
<220>  
<223> Description of Artificial Sequence: Direct repeat  
with spacer of 4 nucleotides  
  
<400> 16  
catagtcagg tcatataagg tcagatcaac 30  
  
<210> 17  
<211> 31  
<212> DNA  
<213> Artificial Sequence  
  
<220>  
<223> Description of Artificial Sequence: Direct repeat  
with spacer of 5 nucleotides

<400> 17  
catagtcagg tcatatatag gtcagatcaa c 31

<210> 18  
<211> 33  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Direct repeat  
with spacer of 6 nucleotides

<400> 18  
catagtcagg tcatatataa ggtcaagatc aac 33

<210> 19  
<211> 33  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Direct repeat  
with spacer of 7 nucleotides

<400> 19  
catagtcagg tcatatatat aggtcagatc aac 33

<210> 20  
<211> 36  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Direct repeat  
with spacer of 10 nucleotides

<400> 20  
catagtcagg tcatatatat ataaggtcag atcaac 36

<210> 21  
<211> 41  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Direct repeat  
with spacer of 15 nucleotides

<400> 21  
catagtcagg tcatagtagt agtagtagag gtcagatcaa c 41

<210> 22  
<211> 17  
    <212> DNA

## &lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Example of a response element suitable for practice of the invention method

&lt;220&gt;

&lt;221&gt; modified\_base

&lt;222&gt; (7)..(11)

<223> This region may encompass 5, 4 or 3 nucleotides, independently selected from a, c, t or g

&lt;400&gt; 22

agttcannnn ntgaact

17

&lt;210&gt; 23

&lt;211&gt; 18

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Example of a response element suitable for practice of the invention method

&lt;220&gt;

&lt;221&gt; modified\_base

&lt;222&gt; (7)..(12)

&lt;223&gt; a, c, t or g

&lt;400&gt; 23

tgaactnnnn nnaggtca

18

&lt;210&gt; 24

&lt;211&gt; 18

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Synthetic oligonucleotide

&lt;400&gt; 24

tgaactcaaa ggaggtca

18

&lt;210&gt; 25

&lt;211&gt; 18

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Inverted repeat response element with spacer of 0 nucleotides

<400> 25  
agcttaggtc atgaccta

18

<210> 26  
<211> 19  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Inverted  
repeat response element with spacer of 1  
nucleotides

<400> 26  
agcttaggtc agtgaccta

19

<210> 27  
<211> 20  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Inverted  
repeat response element with spacer of 2  
nucleotides

<400> 27  
agcttaggtc acgtgaccta

20

<210> 28  
<211> 21  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Inverted  
repeat response element with spacer of 3  
nucleotides

<400> 28  
agcttaggtc acagtgcct a

21

<210> 29  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Inverted  
repeat response element with spacer of 4  
nucleotides

<400> 29  
agcttaggtc acatgtgacc ta

22

<210> 30  
 <211> 23  
 <212> DNA  
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Inverted  
 repeat response element with spacer of 5  
 nucleotides

<400> 30  
 agcttaggtc acactgtgac cta

23

<210> 31  
 <211> 23  
 <212> DNA  
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Inverted  
 repeat response element with spacer of 6  
 nucleotides

<400> 31  
 agctttgaac tcaaaggagg tca

23

<210> 32  
 <211> 18  
 <212> DNA  
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: IR-M

<400> 32  
 agcttacgtc atgacgta

18

<210> 33  
 <211> 33  
 <212> DNA  
 <213> Homo sapiens

<400> 33  
 tagaatatga actcaaagga ggtcagtgag tgg

33

<210> 34  
 <211> 33  
 <212> DNA  
 <213> Homo sapiens

<400> 34  
 tagaatatga actcaaagga ggtaagcaaa ggg

33

<210> 35  
<211> 32  
<212> DNA  
<213> Homo sapiens

<400> 35  
tagaatatta actcaatgga ggcagtgagt gg

32

<210> 36  
<211> 25  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide for PCR

<400> 36  
gagcaattcg ccattactct gaagt

25

<210> 37  
<211> 25  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide for PCR

<400> 37  
gtccttgagg tctttacct ttctc

25

<210> 38  
<211> 25  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide for PCR

<400> 38  
gacgatttgg atctggacat gttgg

25

<210> 39  
<211> 15  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide for PCR

<400> 39  
tgaacttcac gaact

15

<210> 40  
<211> 25  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 40  
gttttcatct gagcgtccat cagct

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<210> 41  
<211> 6  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Illustrative  
peptide

<400> 41  
Arg Gly Lys Thr Cys Ala  
1 5

<210> 42  
<211> 15  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 42  
tggtcttcat gttct

15

<210> 43  
<211> 15  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 43  
acaacttcat gaact

15